

SPLENECTOMY

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INTRODUCTION

Splenectomy can be a life-saving procedure and is often necessary on an emergency basis. Unfortunately, most dogs that present with a spontaneous hemoabdomen associated with a splenic bleed have neoplasia as the underlying etiology; although benign lesions such as hematomas may also be seen. Stable dogs with non-ruptured splenic masses are also candidates for splenectomy. Spontaneous hemoabdomen is a challenging condition that requires rapid diagnosis with timely therapeutic intervention to maximize the chance of a successful outcome. Unfortunately, malignant neoplasia is the most common etiology and despite a successful short-term outcome, a guarded long-term prognosis is common. The peritoneal cavity can be considered a large potential space in which the majority of a dog's blood volume can reside. Consequently, with rupture of a highly vascular intra-abdominal organ, vascular collapse and end-organ ischemia can result rapidly. The major objectives of the veterinarian who is treating a patient with spontaneous hemoabdomen include; rapid and effective resuscitation, timed surgical intervention, rapid identification of the point of hemorrhage and efficient elimination of the source of hemorrhage.

INDICATIONS

Splenectomy is indicated for removal of splenic neoplasm, rupture, torsion, infarct, abscess and hypersplenism.

PATIENT POSITIONING

The patient is placed in dorsal recumbency for routine celiotomy.

RECOMMENDED INSTRUMENTS

A Balfour self-retaining abdominal retractor is essential to maintain adequate exposure allowing complete exploration of the abdominal cavity as well as visualization of the splenic blood supply. When large amounts of blood or fluid are present in the abdominal cavity suction, using a Poole suction tube, is helpful. It is best to have a variety of sizes of hemostats available. The author recommends a minimum of 6 medium to large hemostatic forceps (Crile, Kelly or Carmalt) and 4 – 5 small hemostatic forceps (mosquito).

Ligation of individual blood vessels or clusters of vessels is performed using 3-0 or 4-0 synthetic absorbable suture material. Common sutures include Biosyn, Monocryl, Dexon, Vicryl, Polysorb, PDS or Maxon. A secure friction knot such as a Strangle knot, Double Half Hitch or Modified Miller's knot is recommended for secure vascular ligations.

SURGICAL TECHNIQUE

A ventral midline incision from xyphoid to pubis is made to allow adequate exposure of all abdomen organs. The falciform ligament is removed from its attachment to the body wall and xyphoid and a large (10") Balfour self-retaining retractor is positioned (with the frame of the Balfour toward the cranial aspect of the incision) to provide exposure of the abdominal cavity.

The spleen is located in the cranial left quadrant of the abdominal cavity just caudal to the greater curvature and fundus of the stomach. The spleen is identified, and gently elevated through the abdominal incision. If the surgeon is dealing with a bleeding spleen (e.g., hemangiosarcoma) the exteriorized spleen is placed across the body wall to help place pressure (tether) on the splenic blood vessels. In addition, a dry laparotomy pad can be placed directly on the point of hemorrhage and gentle pressure applied. At this point a rapid and complete abdominal exploratory is performed to rule-out obvious metastasis.

Prior to splenectomy several structures should be identified. The greater curvature of the stomach, dorsal and ventral layers of the greater omentum, the gastrosplenic ligament and the left limb of the pancreas. Trace the splenic artery and vein as they course from the dorsal layer of the greater omentum into the gastrosplenic ligament. Identify the left gastroepiploic artery and vein, the many splenic arterial and venous branches into the hilus of the spleen, the short gastric vessels and the vessels continuing into the greater omentum.

The spleen receives its blood supply from 3 major sources. Three to four short gastric vessels supply the cranial aspect of the spleen. The central portion of the spleen is supplied by the major splenic artery and vein and the caudal pole of the spleen by 4-5 small omental tributaries.

The spleen can safely be removed using a technique requiring only 3 to 4 cluster ligations. Visualization of these vessels is accomplished by first elevating the spleen from the abdominal cavity. When attempting to exteriorize the spleen it is noted that its cranial pole is tethered to the greater curvature of the stomach by the 3 to 4 short gastric vessels. These vessels are identified and cluster ligated with two encircling ligatures. The vessels are transected between ligatures thus releasing the tethering effect. The spleen can now be further mobilized from the abdominal cavity allowing easy exposure of all remaining vessels.

Next the major splenic artery and vein is located and ligated prior to its bifurcation. Care should be taken to visualize the left limb of the pancreas and make certain it is a safe distance from the proposed ligation site. The splenic artery and vein are generally double ligated and depending upon size the artery can be transfixed. Finally the remaining vessels supplying the caudal pole of the spleen are cluster ligated using one or two ligatures.

During the procedure, several points should be remembered:

- 1) when ligating the splenic artery and vein, identify the location of the pancreas and do not occlude its blood supply
- 2) double ligate all major vessels
- 3) carefully inspect all ligated vessels for evidence of hemorrhage

CLOSURE

The Balfour retractor is removed and the abdominal incision is closed in a routine fashion.

POSTOPERATIVE CONSIDERATIONS

Postoperative care involves monitoring the patient for blood loss that may be encountered should a ligature slip from the ligated vessels.